



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

October 11, 2004

LYNDO TIPPETT  
SECRETARY

MEMO TO: Steve DeWitt, Don Lee, Berry Jenkins, Michael Taylor, Ben Lindsey  
Jay Bennett, Shannon Sweitzer, Judith Corley-Lay, Stuart Bourne,  
Jonathan Bivens, Jennifer Brandenburg, Ed Spencer, Kenny Haynes,  
John Couture, Dave Rankin and Dave Hurley

FROM: J. V. Barbour, P. E. *[Signature]*  
State Project Services Engineer

SUBJECT: AGC/Roadway Subcommittee Meeting Minutes  
September 14, 2004

The subject committee met on September 14, 2004 at 10:00 a.m. in the Project Services Conference Room at the Century Center with the following in attendance:

Berry Jenkins	Steve DeWitt	Ted Sherrod
Victor Barbour	Randy Garris	Norma Smith
Scott Allen	Chris Howard	Shannon Sweitzer
Jay Bennett	Ben Lindsey	Eddie Spencer
Jonathan Bivens	Ellis Powell	Shannon Sweitzer
John Couture	David Rankin	Michael Taylor
		Brian Webb

The following items were discussed:

**1. TURBIDITY AND 400-FOOT BUFFER**

The Department distributed a copy of the Project Special Provision for *Contractor Borrow Source* (copy attached) and the *Skaggs Method for determining lateral effects of a borrow pit on adjacent wetlands*. After review of this specification, the Industry had concerns about the following issues:

Language required or preferred for recorded conservation easement – Ted Sherrod will check with Right of Way on wording.

What kind of assessment should be provided if there is no impact on the surrounding area? The Department replied it should be a statement from the environmental or hydraulics engineer. During the discussion, the Department emphasized the contractor is ultimately responsible for the investigation, and the water quality cannot be degraded.

The Department agreed to review the language. The provision will be in the October 2004 letting as is, due to time constraints.

We continue to work with resource agencies regarding the 50 NTU requirement for pumped water from borrow sources. While we are trying to get clarification on the 50 NTU requirements we are developing a spreadsheet of potential remedies to lower the NTU's from the pumped water. We hope to have that spreadsheet available for contractors use in the near future.

## **2. SEEDING AND MULCHING EMBANKMENTS**

The Department and Industry reviewed the proposed specification for *Section 225 Roadway Excavation* (copy attached) and discussed whether or not it is clear and enforceable as it is written in the Specifications Book or are there loopholes. This proposed specification requires continuous seeding and mulching on the slopes. The Department stated there have been 7 ICIs in the state this year. The Industry representatives stated they believe the specification is fine as is and enforcement is the issue.

## **3. EMBANKMENT SETTLEMENT TIMES**

The Industry asked about the 3-month waiting period without settlement gages, then 6 months after the piles are driven (for a total of 9 months) which results in longer contract time requirements for projects. The Department responded it takes borings to determine the time needed for settlement. The piles cannot be driven after 1 month because of the negative skin friction on the piles. The consolidation of the subgrade (and not the fill) is to avoid the bump at the bridge.

## **4. BORROW FROM DOT OWNED SOURCES**

The Industry stated there is a wide disparity on how the borrow from Department owned borrow sources is treated and asked if there was a need for a policy or specification to address it. The Department agreed there are inconsistencies, said the old instruction letter is being revised, and will be reissued. Further, the Department stated the old borrow prices have been reviewed and they were determined to be current with today's prices. The State Roadway Design Engineer was asked if the designers could show additional potential areas where unclassified material may be obtained, and he replied his staff shows it where we know material can be obtained. The problem for us is that on borrow projects we do not know where the borrow will be obtained. The Department said borrow pits adjacent to right of way is considered to be unclassified material. The Department will share the old letter with committee members prior to reissue.

## **5. CHANGES IN THE PREQUALIFICATION (DISQUALIFICATION) SPECIFICATIONS (COPY ATTACHED)**

The Department explained these are additions to *Section 102-16* of the Specifications, and they are a *may* condition, not a *shall* condition; contractors are given a fair hearing before the conditions are invoked. The Industry had concerns about number 16. The Industry suggested the term *application* might need to be defined. The Department will review the provision prior to distribution.

**6. ACTIVE CLAIMS**

The Department stated there have been internal changes for handling Notices of Intent and Claims. Roadway Construction Engineers will now review and handle the claims. The Resident Engineers will be involved during the initial review since they are the closest to the field issues.

The Department and Industry discussed the culture of filing claims needs to change, and all should make more of an effort to resolve NOIs and misunderstandings prior to issues becoming a claim. Claims should become only the last resort.

**7. ESCALATION OF PROBLEMS WITHIN DIVISIONS:**

The Department and Industry discussed the escalation of problems to various levels of Department management. Currently there are calls by the Industry to the Construction Unit after talking to the Resident Engineers. It was recommended the Industry escalate the issues up to the Division Engineers initially. There is a better chance to solve issues at the Division level, before others become involved.

**NEXT MEETING**

The next meeting will be at 10:00 a.m. on Thursday, November 4, 2004 in the Project Services Conference Room. You may want to reserve all day for this meeting in case they run long, or there is a need to make a field trip in the afternoon.

JVB:NS

Cc: Randy Garris, PE  
Ted Sherrod  
Norma Smith

**CONTRACTOR BORROW SOURCE**

10-19-04

Revise the *2002 Standard Specifications* as follows:

Page 2-17, Article 230-4(C) Contractor Furnished Sources, add the following;

If the Contractor proposes a borrow source, the environmental assessment shall include wetland and stream delineation extending 400 feet beyond the proposed borrow source limits.

1. If wetlands or streams are present within 400 feet of the borrow source and the contractor proposes to dewater:
  - a. Submit a hydrologic analysis (Skaggs Method) to determine if lateral effects will permanently impact or cause degradation to wetlands or streams. The analysis shall be performed by an environmental or hydraulics engineer with expertise in this discipline and shall consist of, but not be limited to:
    - Hydric soil type
    - Average profile depth to restrictive soil layer
    - Average hydraulic conductivity or permeability
    - Average drainable porosity or available water capacity
    - Required buffer width, including safety factor
  - b. Attach a conservation easement specifying that the completed pit impoundment, shall not be drained, ditched, used for irrigation, or any other manner that would degrade wetlands and streams.
  - c. Provide copy of recorded conservation easement to Engineer prior to commencement of any work on proposed pit.
2. If wetlands or streams are not present within 400 feet, no additional documentation will be required.

During Department review of the proposed borrow area, the hydrologic analysis will be submitted to the U. S. Army Corps of Engineers for evaluation.

Obtain copy of Skaggs Method for Determining Lateral Effects of a Borrow Pit on Adjacent Wetlands from Roadside Environmental Unit web site:

[http://www.doh.dot.state.nc.us/operations/dp\\_chief\\_eng/roadside/fieldops/](http://www.doh.dot.state.nc.us/operations/dp_chief_eng/roadside/fieldops/)

Copies may also be obtained from Room 558, Transportation Building, 1 S. Wilmington Street, Raleigh, NC 27601.

SP1G111

**Skaggs Method for Determining Lateral Effects of a Borrow Pit on Adjacent Wetlands**  
**8/30/04**

**Step 1:**

- Determine Hydric Soil Type adjacent to the proposed Borrow Pit.

**Step 2:**

- From County Soil Survey's Physical and Chemical Properties Table or site investigation, determine the average profile depth to the restrictive layer ( $h_o$ ) and average hydraulic conductivity or permeability (K),
- Assume an average drainable porosity or available water capacity (f) of 0.035 in/in. (This value is based on recent measured values from NCSU research).
- $h_o$  (in); K (in/day); f (in/in)

❖ *Make sure to convert k from in/hr to in/day*

**Step 3:**

- Assume a drawdown of 10-in for the Skaggs Method; this will be the point at which wetland hydrology requirements are satisfied.
- Assume depth of water in pit below surface will return within 2-ft or 24-in of the seasonal high water table and refer to the  $T_{25}$  Table (Table1) to determine the  $T_{25}$  (day) value for county of interest

**Step 4:**

- Calculate d (in), the distance from the restrictive layer to the borrow pit water surface elevation.

$$d = h_o - 24\text{-in}$$

- Calculate h (in), the distance from the restrictive layer to the drawdown.

$$h = h_o - 10\text{-in}$$

**Step 5:**

- Calculate D (in/in) and H (in/in):

$$D = d / h_o$$

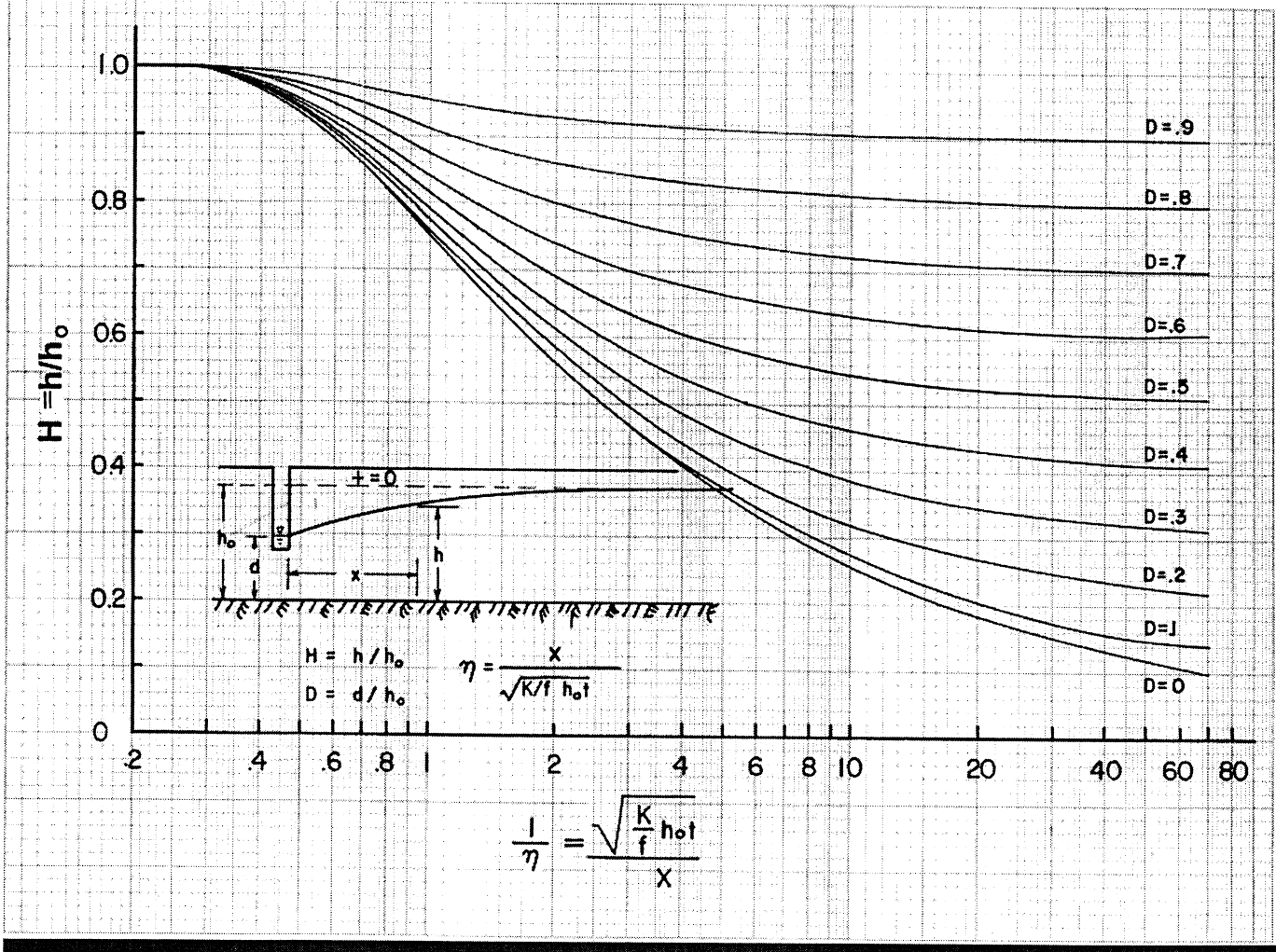
$$H = h / h_o$$

### Step 6:

- Determine  $1/\eta$ .
- Use the nondimensional plot of solutions to the Boussinesq Equation for drainage associated with a Borrow Pit impoundment in order to determine  $1/\eta$ .

#### How to Read the Plot:

The dimensionless  $1/\eta$  is simply the intersection of  $H$  and  $D$  determined from Step 5. When choosing a curve for the  $D$  value on the graph, choose the closest value to the calculated  $D$  for accuracy.



**Step 7:**

- Determine the lateral effects using the Boussinesq Equation

$$1/\eta = \sqrt{((K/f) * h_o * t)/X}$$

- Solve for X (ft)

$$X = \sqrt{((K/f) * h_o * t)/\eta}$$

**Step 8:**

- Include a 2X Factor of Safety.

$$\text{Factor of Safety} = 2 * X$$

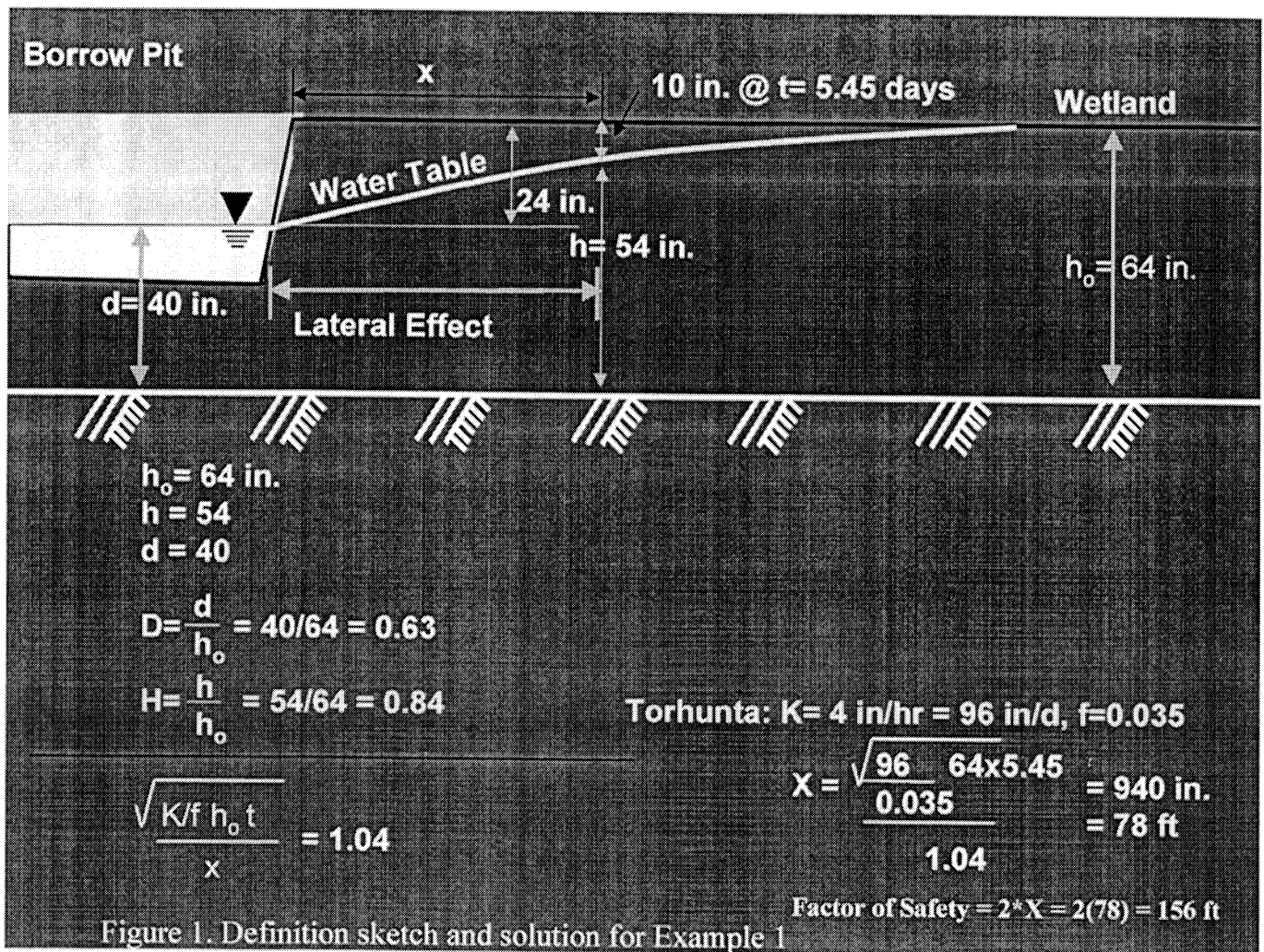
❖ *Make sure to convert X from in to ft.*

❖ See attachment for sample calculations.

Table 1. Summary of T<sub>25</sub> values (in days) for 13 North Carolina Coastal Plain counties for surface depressional storage of 1 inch (2.5 cm).

Depth of water in pit below surface	1 ft	2 ft	3 ft	4 ft	5 ft	6 ft
Bertie	10.3	8.7	9.3	10.7	11.9	13.1
Bladen	11.8	10.3	10.5	10.9	11.3	12.4
Craven	5.14	5.21	6.02	6.87	7.50	8.14
Cumberland	6.30	6.29	7.40	8.56	9.10	9.67
Lenoir	9.8	8.4	9.1	10.4	11.2	12.1
New Hanover	4.5	5.45	5.85	6.28	6.65	6.88
Onslow	6.8	6.2	7.4	8.8	9.2	9.5
Pamlico	5.1	5.7	6.1	7.0	7.5	8.0
Pasquotank	6.55	6.02	6.70	7.36	8.10	8.80
Robeson	10.4	9.1	9.6	10.9	11.6	12.7
Washington	9.1	7.85	8.12	8.87	9.59	10.2
Wayne	14.0	11.1	11.4	12.3	12.9	13.4
Wilson	11.0	11.2	11.4	12.0	12.0	12.8

### Example 1 – New Hanover County



#### Step 1:

- Torhunta

#### Step 2:

- $K = 4 \text{ in/hr} = 96 \text{ in/day}$
- $h_o = 64 \text{ in}$
- $f = 0.035 \text{ in/in}$

#### Step 3:

- Drawdown = 10 in
- 2 ft depth of water in pit below surface:  $T_{25} = 5.45 \text{ days}$  for New Hanover County



**Step 4:**

- $d = 64 \text{ in} - 24 \text{ in} = 40 \text{ in}$
- $h = 64 \text{ in} - 10 \text{ in} = 54 \text{ in}$

**Step 5:**

- $D = 40 \text{ in}/60 \text{ in} = 0.63$
- $H = 54 \text{ in}/60 \text{ in} = 0.84$

**Step 6:**

- $1/\eta = 1.04$

**Step 7:**

- $X = \sqrt{(K/f) * h_o * t)}/\eta$
- $X = \sqrt{(96/0.035) * 64 * 5.45)/ 1.04}$   
 $X = 940 \text{ in}$   
 $= 78 \text{ ft}$

**Step 8:**

- Factor of Safety =  $2 * X$
- Factor of Safety =  $2 * 78$   
**Factor of Safety = 156 ft**

## **DISQUALIFICATION OF BIDDERS**

11-16-04

The 2002 *Standard Specifications* are revised as follows:

Page 1-17 Article 102-16, replace No.12 with the following:

12. Failure to submit the documents required by Article 109-10 within 60 days after request by the Engineer.

Page 1-18 Article 102-16, add the following after Number 15.

16. False information submitted on any application, statement, certification, report, records and/or reproduction.

Conviction of any employee of company, of any applicable state or federal law, may be fully imputed to the business firm with which he is or was associated or by whom he was employed or with the knowledge or approval of the business firm or thereafter ratified by it.

17. Being debarred from performing work with other city, state, and federal agencies.
18. Failure to perform guaranty work within the terms of the contract.

SP1G155